

Average Rate of Change

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Exploration

Class _____

Name _____

1. Suppose you travel 20 miles in $\frac{1}{2}$ hour; describe how to find your average speed and then calculate it. (Include the correct units in your answer.)

2. If you ran 100 feet in 4 seconds, describe how to find your average speed and then evaluate it. (Include the correct units in your answer.)

3. If you move your pencil from any starting position to a point 4 inches away in 2 seconds, describe how to find how fast the pencil is moving and then find it. (Include the correct units in your answer.)

4. If you change the position of your body by 12 feet in 1 minute, describe how to find your average speed and then find the value of the speed. (Include the correct units in your answer.)

5. As you move 160 feet, your watch changes from 1:01 PM to 1:03 PM, describe how to find how fast you are moving and then calculate it. ALSO, if we choose to let Δ symbolize “change,” what is Δ *time*? (Include the correct units in your answer.)

6. A football player changes his position from the 15 yard line to the 24 yard line, while the scoreboard clock changes from 9 minutes and 15 seconds to 9 minutes and 13 seconds remaining. If we choose to let Δ symbolize “change,” what is Δ *time*? Using Δ to symbolize “change,” what is Δ *distance traveled*? Calculate how fast he is moving. (Include the correct units in your answer.)

7. An airplane passenger changes her position from row 10 to row 25 as her watch changes from 1:15 to 1:17 PM. If we choose to let Δ symbolize “change,” what is Δ *time*? Using Δ to symbolize “change,” what is Δ *distance traveled*? Calculate how fast she is moving. (Include the correct units in your answer.)

8. Using the symbol Δ to represent the concept of change, describe how to calculate how fast an object is moving.

9. If you mow grass at a rate of 250 square feet per minute, how fast are you mowing? _____

10. If you mow 750 square feet of grass in 3 minutes, how fast are you mowing? _____

11. If you paint a wall at a rate of 20 square feet per minute, how fast are you painting? _____

12. If you paint a wall at a rate of 100 square feet in 5 minutes, how fast are you painting? _____

13. If an I.V. drip bag is set to release 2.5 *ml* of fluid per minute, at what rate is the fluid being released?

14. If an I.V. drip bag is set to release 12.5 *ml* of fluid per 5 minutes, at what rate is the fluid being released?

15. At what rate could you mow a 5,000 square foot lawn in 10 minutes? _____

16. At what rate could you paint a 200 square foot wall in 2 hours? _____

17. Suppose you spend money compared to earning money at a rate of \$2 _____ spent for each dollar earned. With a monthly income of x , what is your monthly debt?

18. If your car consumes 12.8 gallons of gasoline for 384 miles driven, _____ what is the rate at which it is using gasoline?

19. An author writes 78,000 words and uses 120 pages. What is the rate _____ at which he is writing in words per page?

20. Describe a calculation used to find a “rate.” _____
